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DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

January 21, 2015

Doug Thornton
U.S. Oil Sands (Utah), Inc.
170 South Main Street, Suite 500
Salt Lake City, Utah 84101

Subject: Initial Review of Revised Notice of Intention to Commence Large Mining Operations, U.S. Oil Sands, PR Springs Mine, M/047/0090, Uintah County, Utah

Dear Mr. Thornton:

On January 9, 2015, the Division of Oil, Gas and Mining sent a review of a revision to the PR Spring mine. The review that was sent was a draft and not the final version. Most of the changes in the final edition are not substantive, but there are differences, including two comments that were deleted. I apologize for this error. The attached comments will need to be addressed before the Division issues tentative approval of this significant revision.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by submitting replacement pages for the original Notice using redline and strikeout text. After the Notice is determined technically complete, the Division will ask that you send two clean copies of the complete and corrected plan. Both copies will be stamped approved, and one will be returned for your records.

The Division will suspend further review until receiving a response to this letter. If you have any questions in this regard please contact me at 801-538-5261 or the members of the review team: April Abate (aa) at 801-538-5214, Leslie Heppler (lah) at 801-538-5257, or Lynn Kunzler (lk) at 801-538-5310. Thank you for your cooperation.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB:aa:eb

Attachment: Review

cc: Jerry Mansfield, SITLA jmansfield@utah.gov
Dan Hall, DWQ (dhall@utah.gov)

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**INITIAL REVIEW OF NOTICE OF INTENTION
TO COMMENCE LARGE MINING OPERATIONS**

**U.S. Oil Sands
PR Spring Mine**

**M/047/0090
January 21, 2015**

General Comments:

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
1	General	Submittal should be formatted to easily incorporate additional revisions and amendments. (No response needed.)		
2	General	The Division may generate additional comments based on the response to this review. (No response needed.)		
3	General	The Division recommends use of the term "operator" instead of "USOS" throughout the Notice.	lah	

R647-4-105 - Maps, Drawings & Photographs

General Map Comments

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
4	All Maps	Please show "Phase 1" outline (as is referred to in the text) on all maps. Is Phase 1 the same as the disturbance boundary on the maps? This applies to Figures 1, 2, 4a-d, and 5.	lah	
5	All X-sections	On Figures 6a, 6b and 6c, please reduce the vertical exaggeration. The current depiction of exaggerated cross section profiles gives the impression of steep terrain and may be misunderstood by the public.	lah and aa	
6	All X-sections	On Figures 6a, 6b and 6c, please label the slope angles on both the cut and the fill slopes to be consistent with the text. The rock slopes discussed on page 10 commit to 1H:1V slope, so please label x-sections as "max 1H:1V". Fill slopes noted on page 15 to be no steeper than 3H:1V, so please label x-sections as "max 3H:1V".	lah	
7	Omission	Please add a figure or plan sheet of "typical BMP's" for erosion control. The BMP design drawings from the original Notice were omitted for this submission. The Division would like to have the BMP erosion control structures resubmitted so these structures match the ones that will be used onsite.	lah aa	

105.1 - Topographic base map, boundaries, pre-act disturbance

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
8	Figure 2	The premining map shows the location of the soil stockpile in the same location as it is shown on Figure 4D at the end of year 4. Please make the appropriate correction.	aa	
9	Figure 2	The topsoil stockpile and stormwater management area colors on the map legend are too similar and should be changed so they can be better distinguished.	aa	

105.2 - Surface facilities map

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
10	Omission	Include areas that will be lined and label areas where secondary containment is needed. Please also include labels on the figures of clay lined or HDPE liners.	lah	

105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
11	Figure 4d	Please include reclamation maps up through the end of year 6, since that is what the text states will be the completion time for the Phase I activities.	aa	
12	Figure 7	Please be more specific about which sediment control features will be used at the bottom of the pit slopes instead of labeling the areas SED BMP.	aa	
13	Figure 8	Please put a strike and dip symbol on the map which is consistent with the text. Use USGS standards, i.e. add to legend, use stand symbol, and place symbol at the outcrop location.	lah	
14	Figure 11	The legend shows the man camp in the same color disturbance area on the inset map. The man camp should be labeled as being off the map and include an arrow with a note showing the distance.	lah	
15	Figure 11	Please include the placement of interim reclamation erosion control features on this map (see comment 38).	aa	

R647-4-106 - Operation Plan

106.2 - Type of operations conducted, mining method, processing etc.

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
16	Page 10 para 2	Subgrade ore: a) Show locations of temporary stockpile on the maps, and b) Restate "suppress dust on roads or other areas." (See page 14, para 1 from June 9, 2014, approval.) The size of the subgrade ore stockpiles should be relative to Table 3. This also applies to paragraph 4 on page 11. Subgrade ore should not be mixed with water and used for dust suppression on the roads or other areas. This creates an unnecessary risk of petroleum hydrocarbon laden-water as runoff that could enter drainages in the surrounding area.	lah aa	
17	Page 10 & App D	The blast rig needs to be included in the reclamation cost estimate.	lah	
18	Page 10 para 6; page 15	The text refers to a 2013 report by Seegmiller, but the report has not been included in the Notice. The Division suggests removing reference to the report as slopes less than 1H:1V do not require a geomechanical or geotechnical report. The Division prefers reference to a factor of safety that will be maintained.	lah	
19	Page 12	Please show on a figure, such as 3a, the areas of secondary containment liners for all areas discussed on page 12.	lah	
20	Pg. 13 106.2	The plan indicates that the solvent will be recycled and returned to the front of the process. Is there any solvent and/or process water that eventually cannot be recycled any further and will require storage for off-site disposal?	aa	
21	Page 14 Para 6	Please provide the pipeline diameter in the text, show on the reclamation map where the pipeline will be capped during final reclamation, and include in the reclamation cost estimate.	lah	
22	Page 16 Para 2	More information is needed on the assumptions of pore water pressure increases, as the plan indicates the backfill will be blended with overburden and interburden.	lah	
23	Page 16 Para 2; Page 15 Para 4	The Notice refers to "straw waddles or similar BMP." The Division suggests that this be rewritten as, "the appropriate erosion BMP, as defined under the impacts section of the Notice." The Division generally prefers stone check dams over straw waddles, but each has their appropriate application. Please include a drawing or plan sheet with the BMPs that could be used at the site.	lah	
24	Page 17 Table 1	In the row labeled "topsoil storage area on pit", please add parentheses around 3.8 to show that it is a negative number.	lah	

106.3 - Estimated acreages disturbed, reclaimed, annually

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
25	Page 18 Table 2	Table notes only nine acres at year six. Please specify in the text what acreage will be remaining at year six.	lah	

106.4 - Nature of materials mined, waste and estimated tonnages

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
26	Page 18 Para 3	Please rewrite the phrase "... overlain by Green River Formation ..." as the formation below is also the Green River formation.	lah	

106.6 - Plan for protecting & re-depositing soils

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
27	Pg. 22	The text contains the statement "...salvaged vegetation will be placed adjacent to or beneath the salvaged soil". As far as possible, vegetation should not be buried under the soil pile but placed on the surface of the pile to promote growth and future live hauling of vegetation for reclamation.	aa	

106.8 - Depth to groundwater, extent of overburden, geology

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
28	Page 25 para 3	Include a brief discussion on the stratigraphy below the lowest mining points.	lah	

R647-4-109 - Impact Assessment

109.1 - Impacts to surface & groundwater systems

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
29	Pg. 28	The narrative notes that no springs or seeps were identified within the Phase 1 project area during a May 2014 reconnaissance with personnel from the Division, Water Quality, and the Utah Geological Survey. While this is true, the field reconnaissance did identify springs and seeps flowing within Long Shot Canyon (T16S R23E, Sec. 6), which is part of the Main Canyon watershed. The U.S. Geological Survey has mapped these springs, along with several others within the Main Canyon watershed. Access restrictions prevented the group from conducting a more detailed survey of the other mapped seeps and springs within the watershed. Because the Phase 1 mining area is part of the Main Canyon watershed, it is necessary to evaluate any impacts from the mining operation, which is why a baseline characterization of the springs and seeps is needed. Please include a baseline characterization spring and seep survey to begin in the spring of 2015.	aa	
30	Pg. 30	The water right allotment for the two production wells is 360 acre feet/annually. The source of this water is from the deep Douglas Creek regional aquifer that is located approximately 2,000 below the surface. The Notice does not address what volumes of water are needed to process the bitumen. For the Division to determine that U.S. Oil Sands is not exceeding their allotment of water from water right number 41-3523, please update the narrative and quantify the amount of water used for processing on both a daily and annual basis.	aa	

109.4 - Slope stability, erosion control, air quality, safety

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
31	Page 37 Para 4	This section of the plan use the slope notation 1:1. Elsewhere it is properly noted as 1H:1V. Please change to 1H:1V for consistency.	lah	
32	Page 37 Para 4	Please see comment 16 above.	lah	
33	Page 38 Para 2	Please see comment 24 above.		

R647-4-110 - Reclamation Plan

110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
34	Page 42 all	Please define "deep-ripped". The Division prefers that the Notice specify a ripping depth.	lah	
35	Page 43 Para 5	The Division agrees with the transfer of a viable water well, but until such time a transferee is found in the future, the well and the pipeline will need to be included in the reclamation cost estimate. Please add to the cost estimate and include a brief narrative to the text.	lah	

110.5 - Revegetation planting program

Com ment #	Sheet/Page/ Map/Table #	Comments	Initia ls	Revie w Actio n
36	Page 46-47	<p>The plan states that if the area is broadcast seeded, the area would be disked after seeding. If the area needs to be disked, it should be done just prior to seeding. Otherwise most of the seed would be buried too deeply. Please revise this section.</p> <p>Drill seeding may result in poor establishment of much of the seed. Very small seeds, such as the bluegrass species and sagebrush, need to be broadcast. They can still be seeded with a good rangeland drill if it is equipped with separate seed boxes, and the drop tubes are pulled so that the seed is scattered on the surface rather than going through the furrow openers.</p> <p>Bitterbrush is best seeded with a seed dribbler, or at a minimum a packer wheel is needed if drill seeded (it needs a firm seedbed). Alternatively, it can be hand seeded and stepping on each 'seed hill' to pack the soil.</p>	lk lk lk	
37	Page 47	The seed mix rates should be adjusted. As listed, it is likely only a stand of grasses would establish and very few forbs or shrubs. Given the small size of several of the species, 12-14 pounds per acre for broadcast seeding should be adequate. It is recommended that the rates for muttongrass and Canby bluegrass be reduced to 0.5 pounds per acre each, and the rates for bluebunch wheatgrass, western wheatgrass, and Basin wildrye be cut in half. While the resulting stand with these changes would still favor a grassland establishment, there would certainly be more forbs and shrubs which are important to resident wildlife species in the area.	lk	
38	Page 48	Please include a commitment to use erosion controls structures during the interim period from the time when initial seeding has taken place up through the time when vegetation is established well enough to control erosion.	aa	

Initial Review
Page 8 of 8
M/047/0090
January 21, 2015

Com ment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
39		Please reevaluate the exploration permit E/19/0053 and determine if the permit or a portion thereof, can be released from bond and transferred over to the large mine permit.	aa	
40		Upon approval of the significant revision, the operator will be required to post additional surety once the adjusted amount is determined.	aa	
41		Please include a reclamation cost estimate as part of the second submittal.	whw	